STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Memphis Environmental Field Office
8383 Wolf Lake Drive
Bartlett, TN 38133
Phone 901-371-3000 Statewide 1-888-891-8332 Fax 901-371-3170

CERTIFIED MAIL: 91 7108 2133 3932 2020 7445
RETURN RECEIPT REQUESTED

January 17, 2017

Mayor Mike Wissman
Town of Arlington
P.O. Box 507
Arlington, TN 38002

Re: Notice of Violation (NOV)
Compliance Evaluation Inspection
Arlington STP
NPDES Permit No. TN0078603
Shelby County

Dear Mayor Wissman:

From Tuesday, November 15, 2016, through Thursday, November 17, 2016, Ms. Barbara Loudermilk and Mr. Eddy Bouzeid with the Division of Water Resources conducted a Performance Audit Inspection (PAI) of the Arlington Sewage Treatment Plant (STP). Upon arrival at the facility, Ms. Loudermilk and Mr. Bouzeid met with Mr. Terry Perkins, the plant manager, Mr. Andy Weihl and Mr. Kasey Jones, the plant operators, and stated that the purpose of the inspection was to evaluate the plant's compliance with its National Pollutant Discharge Elimination System (NPDES) permit. This was accomplished by reviewing the facility's self-monitoring records and reports, sampling practices and analytical procedures, and subsequently conducting an inspection of the plant. An audit of Arlington's contracted laboratory, Waypoint Analytical, was also performed. Attached you will find the Performance Audit Inspection Report and corresponding photo documentation which summarize the findings of the PAI.

As is noted in the inspection report the plant experienced 234 exceedances of its NPDES permit limits during the evaluation period from November 2014 through September 2016. In addition, several inappropriate sampling techniques and procedures were identified during the inspection (and detailed in Section VI of the inspection report). It is suspected that the inappropriate sampling techniques could have caused some of the exceedances.

The Division acknowledges that separate notices of violation (NOVs) were issued to the Town of Arlington on September 18, 2015; December 9, 2015; March 9, 2016; June 20, 2016; and September 2, 2016, for effluent violations (exceedances of its NPDES permit limits) which appeared on the EPA Quarterly Non-Compliance Reports (QNCRs).

Please be aware that this NOV is being issued in response to the inspection findings regarding the November 2016 PAI, which included exceedances of NPDES permit limits as well as inappropriate sampling techniques and procedures that occurred during the May 2014 to September 2016 timeframe, in addition to those reported on the EPA QNCRs.

The deficiencies/issues that were discovered during the PAI (and detailed in the attached inspection report) were discussed with the plant operators during the inspection and during the exit meeting held on Thursday, November 17, 2016. Subsequently, on November 22, 2016, the Division received a response letter from Mr. Terry Perkins, the plant manager, indicating the corrective actions the Town has already taken and plans to undertake to address the deficiencies identified during the PAI.

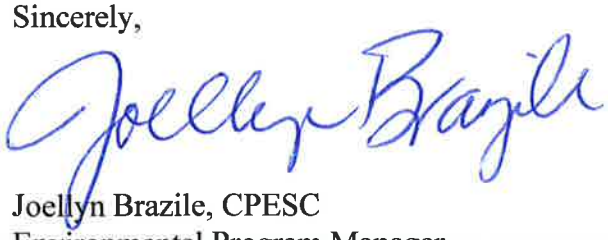
The Division appreciates the efforts and the pro-activeness the Town has taken in taking steps to address the deficiencies that could be corrected in a timely manner, and by putting forward a plan to address the remaining ones.

Required Actions:

- On or before February 17, 2017, please submit a progress report on the status of the corrective actions the Town has undertaken to address the deficiencies identified in Section VI (Self-Compliance Program) of the PAI report.
- The plant experienced 234 exceedances for the reporting period from November 2014 through September 2016. On or before February 17, 2017, please submit documentation regarding corrective actions the Town has taken or will undertake to eliminate future exceedances at the plant.

The Division appreciates Mr. Perkins, Mr. Weihl and Mr. Jones' cooperation and assistance during the inspection and the Town's continued efforts to comply with its NPDES permit requirements. If you have any questions or comments with regard to the inspection please contact Eddy Bouzeid at (901) 371-3023 or eddy.bouzeid@tn.gov.

Sincerely,



Joellyn Brazile, CPESC
Environmental Program Manager
Division of Water Resources
Memphis Environmental Field Office

cc: TDEC/DWR/NCO, Enforcement & Compliance
TDEC/DWR/MEFO – File

ec: Cathy Durant – Administrator Town of Arlington
Bobby Kendall – Public Works Director
Terry Perkins – Plant Manager

TDEC - Division of Water Resources
Memphis Field Office

ICIS NPDES Facilities Inspection Report

Facility Data

NPDES ID: TN0078603 | Facility Site Name: Arlington STP

Address: 11150 Highway 70, Arlington, TN 38002

Permit Eff. Date: Jan 1, 2013 | Permit Exp Date: Nov 30, 2017 | SIC Code:

Compliance Monitoring Information

Compliance Monitoring Activity Name: Performance Audit (PAI)

* If Bio Monitoring is selected above, select the method used:

Compliance Monitoring Activity: Evaluation

Compliance Monitoring Dates/Times

Entry Date/Time (mm/dd/yyyy hh:mm): 11/15/2016 8:00 | Exit Date/Time (mm/dd/yyyy hh:mm): 11/15/2016 15:00

Facility Representatives

On-Site Representative(s)Title, Phone Number	Responsible Official(s), Title, Phone Number
Terry Perkins/(901) 867-1782 / STP Manager	Mike Wissman, (901) 867-2620 / Mayor

Statute and Section Information

Federal Statute: CWA - Clean Water Act | State Statute: Tennessee Water Quality Control Act

Programs: NPDES- Base Program (Limits, Reporting, & Schedule)

Compliance Monitoring Reason: Core Program

Compliance Monitoring Agency Type: State | Agency Name: TDEC - DWR

Did EPA assist/ Inspection? No | Time Physically conducting activity: Days: 1 Hours:

Inspection Type: State | Compliance Monitoring Action Outcome:

Lead Agency: State | Compliance Monitoring Rating Code: Unrated

If Joint Inspection, what was the purpose of the other party?

Areas Evaluated During Inspection (*Check only those areas evaluated*)

☒ Permit	☒ Self - Compliance Program	☐ Pretreatment
☒ Records / Records	☒ Compliance Schedule	☐ Pollution Prevention
☒ Facility Site Review	☒ Laboratory	☐ Storm Water
☒ Effluent / Receiving Waters	☐ Operations & Maintenance	☐ Combined Sewer Overflow
☒ Flow Measurement	☒ Sludge Handling / Disposal	☐ Sanitary Sewer Overflow

Compliance Monitoring Summary

See attached inspection report and/or letter.

EPA and State Representatives

Eddy Bouzeid	TDEC/DWR/MEFO (901) 371-3023	Jan 17, 2017
Inspector's Signature	Agency / Office / Phone	Date
Tabitha Bragg	TDEC/DWR/MEFO (901) 371-3025	Jan 17, 2017
Manager's Signature	Agency / Office / Phone	Date

(Note: This form can only be printed to an XPS document, then saved for later use.)

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Water Resources

Memphis Environmental Field Office, 8383 Wolf Lake Drive, Bartlett, TN 38133

1-888-891-8332 (TDEC)

Compliance Inspection for Individual NPDES Permit

Facility Name: Arlington STP	**NPDES Tracking Number**: TN0078603
Permit Effective Date: January 1, 2013	**Permit Expiration Date:** November 30, 2017
Date and Time of Inspection: 11/15/2016, 11/16/2016 and 11/17/2016	**Inspector Name:** Eddy Bouzeid

Official Contact Person Name: Mike Wissman, Mayor	
Address: P.O. Box 507, Arlington, TN 38002	**Phone Number:** (901) 867-2620
	Email: mwissmanjr@comcast.net

Summary of Findings and Comments

From Tuesday, November 15, 2016, through Thursday, November 17, 2016, Ms. Barbara Loudermilk and Mr. Eddy Bouzeid with the Tennessee Department of Environment and Conservation, Division of Water Resources, conducted a Performance Audit Inspection (PAI) at the Arlington Sewage Treatment Plant (STP) located in Arlington, Shelby County, Tennessee. Ms. Loudermilk and Mr. Bouzeid met with Mr. Terry Perkins, the plant manager, and Mr. Andy Weihl, the plant operator. Monitoring records, sampling practices, flow measurement records and analytical procedures performed at the STP were reviewed and an audit of Arlington's contracted laboratory, Waypoint Analytical, was performed. The following is a summary of the findings and observations:

I. Permit

The NPDES permit for the Arlington STP with tracking number TN0078603 expires on November 30, 2017. A copy of the NPDES permit was available for review at the plant. Mr. Bouzeid reminded Mr. Perkins that the current NPDES expires in approximately one year and the Division strongly recommends that the permit renewal application be submitted 180 days prior to permit expiration.

The NPDES permit authorizes the discharge of treated wastewater effluent from outfall 001 into the Loosahatchie River at mile 30.7.

The design capacity of the treatment system is 2.5 Million Gallons per Day (MGD). From November 2014 through September 2016, the average effluent flow from the treatment system was 1.23 MGD and the maximum flow was 6.33 MGD.

II. Records/Reports

Site records and reports for the treatment system were observed and appeared to be maintained as required by the NPDES permit. Sampling and analytical data, including flow records, Discharge Monitoring Reports (DMRs) and Monthly Operation Reports (MORs) for the period from November 2014 through September 2016 were reviewed and appeared to be complete.

All records and information resulting from the monitoring activities required by the permit including all records of analyses performed and calibration and maintenance of instrumentation should be retained for a minimum of three years, or longer, if requested by the Division of Water Resources.

III. Facility Site Review

The Arlington sewage treatment plant utilizes a sequencing batch reactor (SBR). The SBR consists of a headwork building that houses the bar screen (photo 1) and the grit chamber (photo 2). From the headwork, the wastewater is pumped to the batch reactor for intensive aeration (photo 3). After intensive aeration the wastewater is settled (photo 4) before being disinfected using ultraviolet (UV) lights (photo 5). A cascade system (step aeration – photo 6) is located after the UV lights to enhance the dissolved oxygen (DO) in the effluent. From the cascade system, the effluent is stored in a surge basin (photo 7) prior to discharging to the Loosahatchie River.

The odor at the plant was minimal. Blowers are used to vacuum and filter the odor from the influent pump building station and the headwork building using odor control media.

The Arlington STP discharge effluent characteristic and monitoring requirements are as follow:

- CBOD – five per week composite
- Total Suspended Solids (TSS) – five per week composite
- Ammonia-Nitrogen – five per week composite
- Total Nitrogen – quarterly composite
- Total Phosphorus – quarterly composite
- *E. coli* – five per week grab
- Settleable Solids – five per week grab
- Dissolved Oxygen – five per week grab
- pH – five per week grab
- Flow – daily continuous

The Arlington STP had 234 exceedances of its NPDES permit limits for the period from November 2014 through September 2016. The exceedances were broken down as follow:

- December 2014: two exceedances (2): one TSS daily percent removal and one *E. coli* daily max.

- January 2015: one exceedance (1): one *E. coli* daily max.
- February 2015: four exceedances (4): two *E. coli* daily max, one TSS daily max and one TSS daily percent removal.
- March 2015: six exceedances (6): five *E. coli* daily max and one ammonia nitrogen daily max.
- April 2015: forty four exceedances (44): ten TSS daily max, one TSS monthly average, three TSS weekly average, nine *E. coli* daily max, fifteen ammonia nitrogen daily max, one ammonia nitrogen monthly average and five ammonia nitrogen weekly average.
- May 2015: fifteen exceedances (15): nine ammonia nitrogen daily max, four ammonia nitrogen weekly average, one ammonia nitrogen monthly average, and one *E. coli* daily max.
- June 2015: six exceedances (6): six *E. coli* daily max.
- July 2015: nine exceedances (9): nine *E. coli* daily max.
- August 2015: twelve exceedances (12): two *E. coli* daily max, one CBOD daily max, one ammonia nitrogen daily max, one ammonia nitrogen weekly average, four TSS daily max, one TSS weekly average, one TSS monthly average, and one TSS daily percent removal.
- September 2015: sixteen exceedances (16): two TSS daily max, one TSS weekly average, one *E. coli* daily max, eight ammonia nitrogen daily max, three ammonia nitrogen weekly average, and one ammonia nitrogen monthly average.
- October 2015: nine exceedances (9): one *E. coli* daily max, five ammonia nitrogen daily max, two ammonia nitrogen weekly average, and one ammonia nitrogen monthly average.
- November 2015: one exceedance (1): one TSS daily max.
- January 2016: one exceedance (1): one *E. coli* daily max.
- February 2016: twenty two exceedances (22): four CBOD daily max, one CBOD weekly average, one *E. coli* daily max, twelve ammonia nitrogen daily max, three ammonia nitrogen weekly average, and one ammonia nitrogen monthly average.
- March 2016: eight exceedances (8): one *E. coli* daily max, four ammonia nitrogen daily max, two ammonia nitrogen weekly average, and one ammonia nitrogen monthly average.
- April 2016: one exceedance (1): one *E. coli* daily max.
- May 2016: two exceedances (2): one *E. coli* daily max and one TSS daily max.
- June 2016: twenty eight exceedances (28): three *E. coli* daily max, nineteen ammonia nitrogen daily max, five ammonia nitrogen weekly average, and one ammonia nitrogen monthly average.
- July 2016: twenty nine exceedances (29): four *E. coli* daily max, nineteen ammonia nitrogen daily max, five ammonia nitrogen weekly average, and one ammonia nitrogen monthly average.
- August 2016: eighteen exceedances (18): thirteen ammonia nitrogen daily max, four ammonia nitrogen weekly average, and one ammonia nitrogen monthly average.

As required by Section 2.3.2 (b) of the NPDES permit, an explanation of the exceedances accompanied the DMRs and MORs; however, several Notices of Violations (NOVs) were issued by the Division as a result of the above referenced exceedances. The NOVs that were issued were as follow:

1. NOV issued on September 18, 2015: the Arlington STP appeared on the Quarterly Non-Compliance Report (QNCR) for the second quarter of FY' 2015, for effluent violations for *E. coli*, ammonia nitrogen, TSS and CBOD.
2. NOV issued on December 9, 2015: the Arlington STP appeared on the QNCR for the third quarter of FY' 2015, for effluent violations of *E. coli*, TSS percent removal, ammonia nitrogen, TSS and CBOD.
3. NOV issued on March 9, 2016: the Arlington STP appeared on the QNCR for the fourth quarter of FY' 2016, for effluent violations of ammonia nitrogen.
4. NOV issued on June 20, 2016: the Arlington STP appeared on the QNCR for the first quarter of FY' 2016, for effluent violations of ammonia nitrogen.
5. NOV issued on September 2, 2016: the Arlington STP appeared on the QNCR for the second quarter of FY' 2016, for effluent violations of ammonia nitrogen.

The Arlington STP also conducted quarterly biomonitoring (IC25 on Ceriodaphnia and Pimephales) of its effluent at Outfall 001. The tests were conducted on October 27, 2014; January 26, 2015; June 8, 2015; September 20, 2015; November 15, 2015; February 22, 2016; June 22, 2016; and August 15, 2016. All biomonitoring tests met the value set forth in the NPDES permit.

IV. Effluent/Receiving Waters

The effluent was clear at the discharge point to the Loosahatchie River (photo 8). The sign was in place at the point of discharge to the River (photo 9). The information on the sign was correct.

V. Flow Measurement

Digital flow meters were installed at the influent and effluent (photos 10 & 11). The flow meters appeared to be operating correctly during the time of the inspection. The devices are also calibrated annually by an independent contractor, New Water Systems LLC, located at P.O. Box 193805, Little Rock, AR 72219. The last calibration by New Water Systems was conducted on November 2, 2016. Certification of the calibration was available for review at the plant.

VI. Self-Compliance Program

The Arlington STP uses automatic flow proportional samplers on the influent and effluent (photos 12 & 13). However, due to the nature of the SBR, which is considered a batch discharge system, it is not feasible to collect a flow-proportionate sample from the batch

discharge as stipulated by the permit. As a result, the samplers are set up to collect samples in a time-proportional mode during discharge.

Several deficiencies with sample collection and procedures were noted during the audit. The deficiencies include the following:

1. The sample jugs in the influent and effluent composite samplers were not cleaned after each 24-hr composite sampling events. The potential for sample cross-contamination is a big concern. The jugs need to be cleaned or exchanged with clean ones after each 24-hr sampling event to ensure representative sampling as required by the permit.

2. The influent and effluent sampler intake tubing placement was incorrect. They were placed near the side walls of the influent and effluent structures. The intake tubing needs to be near the center of the partial flume to ensure representative samples.

3. The dissolved oxygen (DO) was not collected as required by approved methodology. Samples were being brought to the plant laboratory for DO and pH measurements. More accurate measurements should be taken at the point where samples are collected on-site.

   The DO meter was not properly calibrated. The meter needs to be calibrated according to the manufacturer's instructions. A Hach pH/DO HQ40d instrument was used to analyze both the DO and pH samples. However, the operator was unfamiliar with how to properly calibrate the DO.

   The temperature and barometric pressure should also be recorded on the daily sheets. These calibration readings should be compared with the values in the USGS DO table (http://water.usgs.gov/software/DOTABLES/). Consider the USGS as the standard or theoretical value. The calibration DO value should be within 10% of the USGS value.

   According to Mr. Perkins, the DO membrane had recently been replaced. The membrane should be changed monthly and recorded either in a maintenance log or on the daily sheets.

4. The pH sample analysis was obtained using an HQ40d field meter. Calibration of the meter was observed and appeared to be appropriately conducted. The operator was advised to also record the sample temperature and document exactly what the buffer standards read. The operator was also advised to keep probe storage solution on hand to keep the probe clean.

5. To ensure accurate sample measurements, it was recommended that the operators, after they calibrate the DO/pH probes using the HQ40d instrument, record DO and pH readings in the plant instead of bringing the samples back to the laboratory for analysis.

6. Daily sample work sheets were not properly recording the daily influent and effluent sampling information as required by the NPDES permit

Section 1.2.4. The daily work sheets need to record the information required in Section 1.2.4 of the permit:

a. a. The exact place, date and time of sampling;
b. b. The exact person(s) collecting samples;
c. c. The dates and times the analyses were performed;
d. d. The person(s) or laboratory who performed the analyses;
e. e. The analytical techniques or methods used, and;
f. f. The results of all required analyses.

7. Sampler strainers were observed to have accumulated debris on the strainers, which could produce erroneous sample results. The strainers need to be cleaned daily.

8. The sampling technique used to collect the *E. coli* samples is suspected to be the cause of the spikes in some of the *E. coli* results. At the time of the inspection, the plant was using a container with a cord to pull the sample and transfer it to a sterilized container. The *E. coli* sample needs to be collected directly in the sterilized container provided by the laboratory. The plant's sampling technique needs to be revisited to ensure that the sample is representative and accurate.

9. The settleable solids sample was not shaken prior to pouring it in the Imhoff cone. Thus, producing erroneous results.

10. The composite sampler tubing had just been replaced. Please be aware that the tubing should be replaced at least monthly and the frequency of replacement should be reflected in the standard operating procedures (SOP). A record should be kept of the tubing replacement and the amount of sample collected checked to ensure a minimum of 100 mL is acquired.

11. The thermometers in the composite samplers were faulty and needed to be replaced. A daily temperature log was not kept.

12. The desiccant in the lab vacuum desiccator as well as the effluent composite sampler needed to be replaced or regenerated as required by the composite sampler manual.

13. A barometer is needed in the lab room to assist in the necessary daily equipment calibration, mainly the DO meter.

14. The standard operating procedures (SOP) for sampling procedures; instructions on proper calibration of field equipment; Quality Control (QC) procedures for equipment calibration; and QC procedures for lab analysis conducted at the plant needs to be updated. The SOP should include the QC measures as directed in 40 CFR136.7 also called the method update rule (MUR). Ms. Loudermilk provided the MUR guidance documents to the operators by the way of the Fleming Training Center website.
http://www.tennessee.gov/environment/article/wr-ftc-waste-water-information

15. The Standard Method for the Examination of Water and Wastewater book could not be located. It was advised that the 22nd edition of this book be acquired since it contained the currently EPA approved methods of analyses and the quality assurance and quality control measures for these methods of analysis.

VII. Compliance Schedule

The treatment system is not under any compliance schedule at the time of the inspection, with the exception of the permit requirements.

VIII. Laboratory

All analyses, except DO, pH and settleable solids, are performed at Waypoint Analytical in Memphis. DO, pH and settleable solids are performed at the STP.

On November 16, 2016, Ms. Barbara Loudermilk and Mr. Eddy Bouzeid conducted an inspection of Waypoint Analytical Laboratory to determine compliance with laboratory testing. Based on the inspection findings, Ms. Loudermilk determined that the analytical practices including a quality assurance and quality control program, to be adequate and legally defensible (Attachment A).

IX. Sludge Handling

Arlington SBR began operation in November 2007 and a lined aerated lagoon was built for sludge wasting (photo 15). The aerated lagoon is approximately 7.229 acres and 30 feet deep. The lagoon was evaluated in October 2016 for remaining capacity. According to Mr. Perkins, the sludge lagoon has approximately 50 percent capacity remaining.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Arlington STP	Arlington, Shelby County	TN0078603

Photo No.	Date
1	11-15-2016

Description
View of the bar screen at the headwork.

Photo No.	Date
2	11-15-2016

Description
View of the grit chamber at the headwork.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Arlington STP	Arlington, Shelby County	TN0078603

Photo No.	Date
3	10-15-2016

Description
View of the SBR basin during intensive aeration.

Photo No.	Date
4	10-15-2016

Description
View of the SBR basin during settling period.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Arlington STP	Arlington, Shelby County	TN0078603

Photo No.	Date
5	10-15-2016

Description
View of the ultraviolet lights disinfection area.

Photo No.	Date
6	10-15-2016

Description
View of the cascade system to enhance the dissolved oxygen.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Arlington STP	Arlington, Shelby County	TN0078603

Photo No.	Date
7	10-15-2016

Description
View of the surge basin.

Photo No.	Date
8	10-15-2016

Description
View of the effluent at the discharge point to the Loosahatchie River. The effluent was clear at the time of the inspection.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Arlington STP	Arlington, Shelby County	TN0078603

Photo No.	Date
9	10-15-2016

Description
View of the sign at the outfall. The information on the sign was correct.

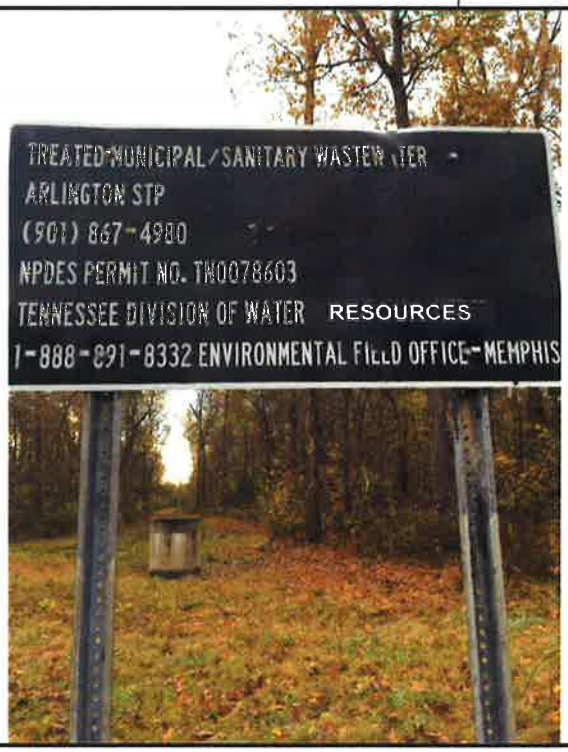


Photo No.	Date
10	10-15-2016

Description
View of the influent digital flow meter.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Arlington STP	Arlington, Shelby County	TN0078603

Photo No.	Date
11	10-15-2016

Description
View of the effluent digital flow meter.

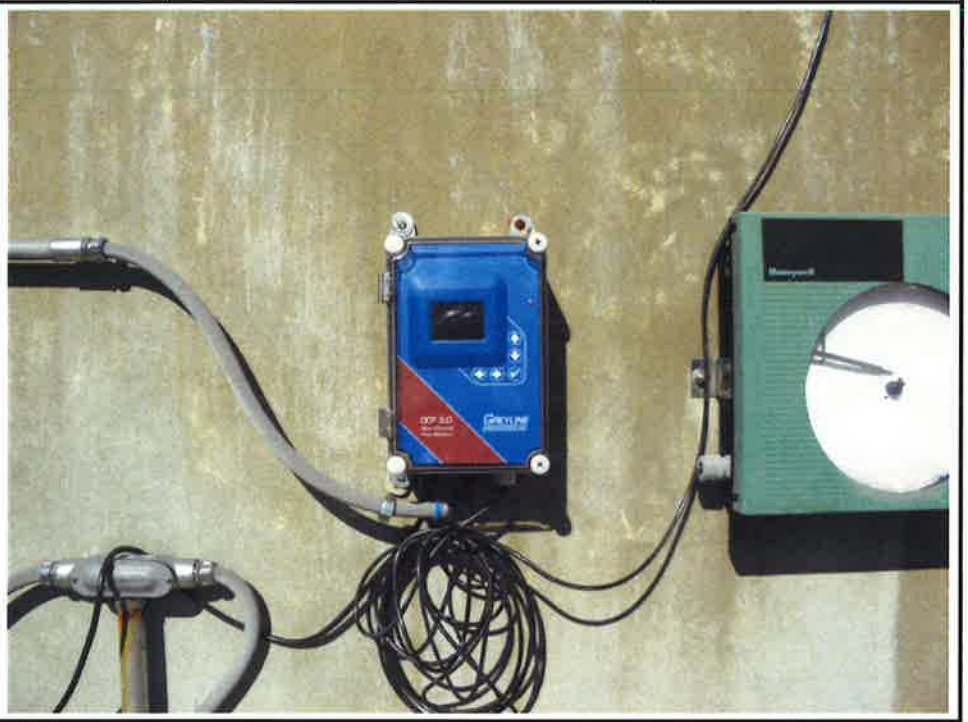


Photo No.	Date
12	10-19-2016

Description
View of the influent composite sampler.

Photographic Log

Facility Name:	Site Location:	Tracking No.:
Arlington STP	Arlington, Shelby County	TN0078603

Photo No.	Date
13	10-19-2016

Description
View of the effluent composite sampler.